SD11
A571
no. 346

ted States
Department of
Agriculture

Forest Service

North Central
Forest Experiment
Station

Research Note NC-346
1988

Fire-Weather Stations in the Northeastern United States

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ABSTRACT.—Presents northeastern locations of instrumented fire-weather stations that record data necessary for input into the National Fire-Danger Rating System.

KEY WORDS: Fire weather, weather observers, fire-danger rating.

The National Fire-Danger Rating System (NFDRS) is used by all Federal agencies and about 35 State agencies charged with forest and rangeland protection (Deeming *et al.* 1977). It is based primarily on weather factors representing a specific geographic or fire area. Although Haines and Frost (1985) recently examined the quality of weather observations, the spatial distribution of fire-weather stations has not been documented in the Northeast since the mid-seventies.

The density of the observation network varies across the country because it depends on the available resources of various Federal and State fire management organizations. We contacted all northeastern Federal and State fire management agencies, requesting the location of their stations along with pertinent supplemental information. The objective of this note is to show the locations and density of the fire-weather network in the Northeast (fig. 1) and also to document the type of installation and weather observations taken.

Basic Information

The fire management agencies provided us with the following information.

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(A)gency
1. State
2. USDA Forest Service
3. National Park Service
4. National Oceanic and Atmospheric Administration (NOAA) Weather Service Office
5. NOAA Weather Service Office with fire-weather forecaster

Name (categorized by State). A star (*) designates a Remote Automatic Weather Station (RAWS).
Location (by county)
Number designation (State, county, station number)
Latitude and longitude (degrees and tenths)
Reporting status: Key or (Reg)ular
Operation status: (Y)ear or (S)easonal

An example of the above information follows.

A	Name	County	Number	Lat/Long	Sta	O
1	Antigo, WI	Langlade	471901	45.2 89.2	Key	Y

From these data we can determine that Antigo, Wisconsin, is a manually operated State (A=1) fire-weather station located in Langlade County at latitude 45.2 and longitude 89.2. Its identification number is 471901. It is a Key station, meaning that it is part of a network of primary stations rather than a (Reg)ular station maintained mostly for local users. It is in (O)peration throughout the (Y)ear. To obtain a complete listing of all stations, write us at the address given at the end of this note.

Data Recorded at the Stations

Weather observers usually record their observations on the 10-day Fire Danger and Fire Weather Record (WS Form D-9b) at 1:00 p.m. (L.S.T.) throughout the fire season. Both observers and data users should review carefully the information on the cover of this form. It outlines the proper procedures for taking a fire weather observation. Not all stations record a complete set of observations for computing fire-danger indices, but most of the required observations are documented. Deeming *et al.* (1977) list the following as inputs into the NFDRS.

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EXPERIMENT STATION

Station number
Station elevation
Fuel model
Herbaceous vegetation—annual or perennial
Slope class
Climate class
Date (year, month, day)
State of weather
Herbaceous vegetation condition
Dry and wet bulb temperatures
Lightning risk
Human-caused risk
Wind speed (10-minute average)
Wind direction
Precipitation kind
Precipitation amount
Precipitation duration
Precipitation, beginning and ending times
Lightning activity level
24-hour maximum and minimum temperatures
24-hour maximum and minimum relative humidities
10-hour timelag fuel moisture

Althouth NOAA stations and some RAWS stations do not use fuel moisture sticks or record vegetative conditions, all necessary weather observations are available, which will often be sufficient for NFDRS calculations. NOAA stations and NOAA stations that include a fire-weather forecaster on the staff are designated on the map (fig. 1). If 10-hour fuel moisture sticks are not included with a Station's instrumentation, see Deeming (1983) for a method to calculate the 10-hour timelag fuel moisture from hourly weather data.

Station Installation

The manual fire weather stations are installed in strict compliance with the directions outlined in the new Forestry Weather Station Handbook (Finklin *et al.* In prep.) or in some of the older but still relevant manuals such as the Fire-Weather Observers' Handbook (Fischer and Hardy 1976). Automatic weather stations and RAWS are recent arrivals in the Northeast, although Western States and regions have used them for some time. These stations are self-contained, electronically operated units requiring no human intervention in the observation and processing of weather data after initial programming. Finklin *et al.* (In prep.) provide the information needed to install and operate these stations.

Write for a Station Listing

The complete list of fire-weather stations and NOAA service offices in the North Central and Northeastern States can be obtained from the North Central Forest Experiment Station, USDA Forest Service, 1407 S. Harrison Road, East Lansing, Michigan 48823.

Literature Cited

Deeming, John E. 1983. **A preliminary model for calculating the ten-hour timelag fuel moisture from hourly weather data.** In: 7th conference on fire and forest meteorology; 1983 April 25-28; Fort Collins, CO. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station. 5 p.

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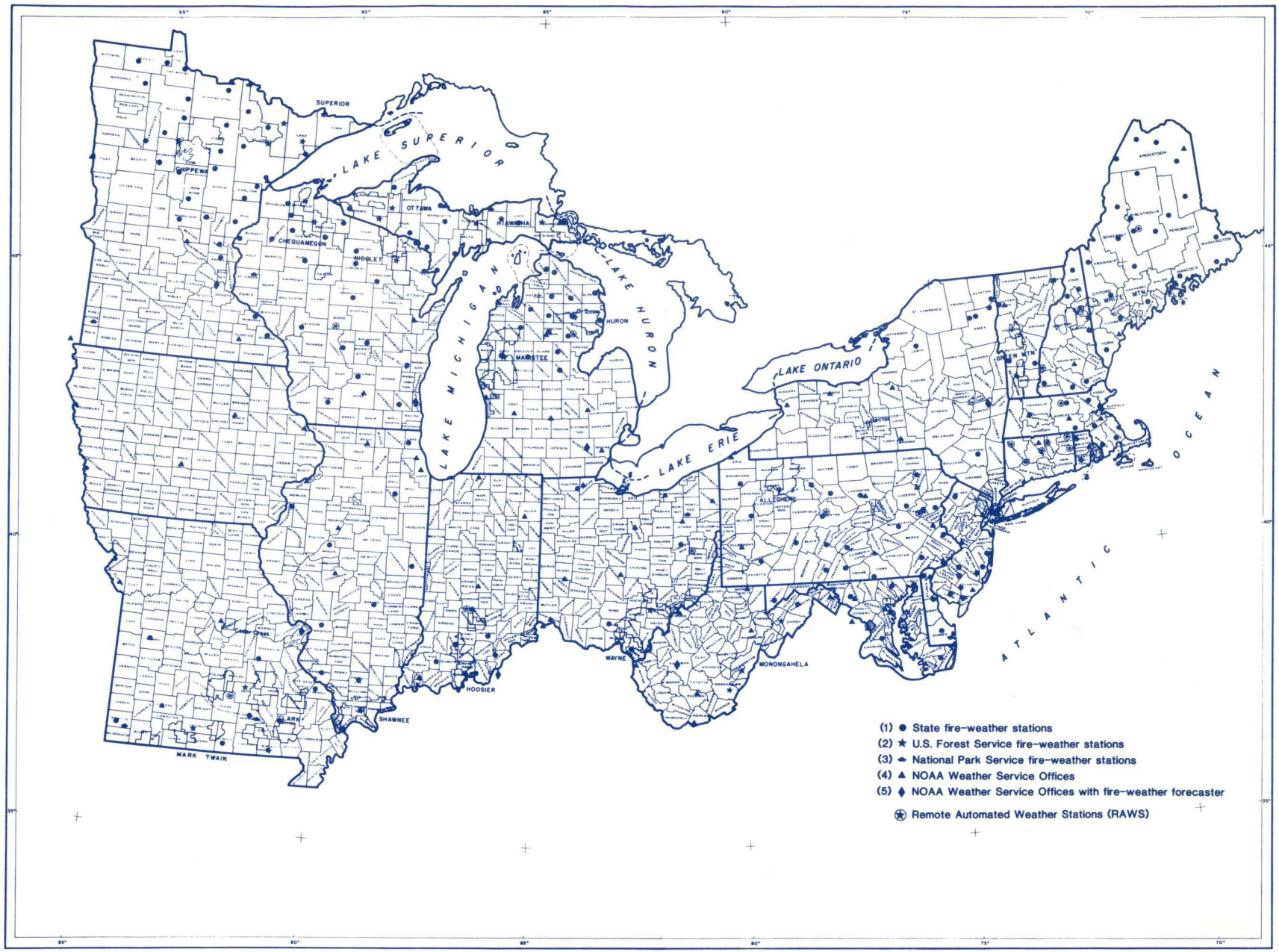

Figure 1. —*Location of fire-weather stations and NOAA weather service offices.*

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